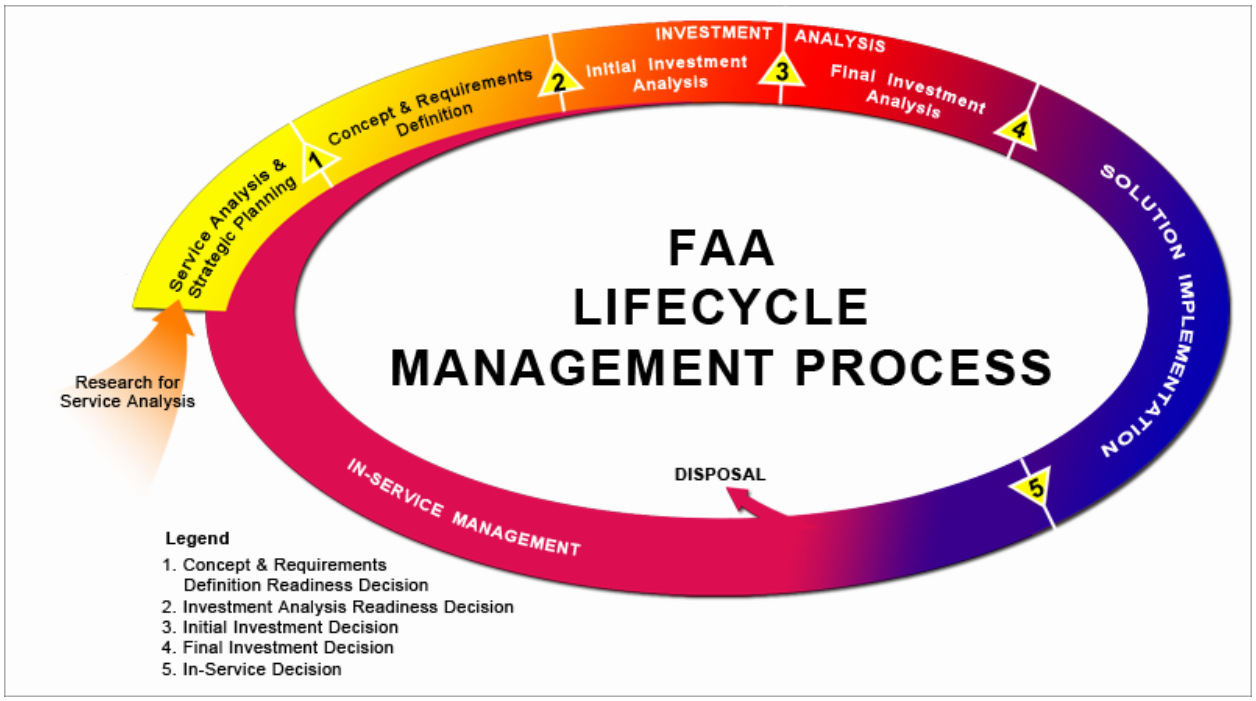
2.1 Overview Revised 4/2013

Lifecycle acquisition management is built around a logical sequence of phases and decision points (see Figure 2.1-1). The FAA uses these phases and decision points to determine and prioritize its needs, make sound investment decisions, implement solutions efficiently, and manage services and assets over their lifecycle. The overarching goal is continuous improvement in the delivery of safe, secure, and efficient services over time. Application is flexible and may be tailored by the Acquisition Executive or Joint Resources Council.

The lifecycle management process is the FAA's Capital Investment Planning and Control Process. Service analysis and investment analysis constitute the select process. Solution implementation is the control process. In-service management is the evaluation process.

Figure 2.1-1 The FAA Lifecycle Management Process



2.1.1 Key Elements of Lifecycle Management Policy Revised 4/2013

FAA lifecycle management policy emphasizes the following:

- Service organizations are responsible and accountable for managing service delivery throughout the lifecycle;
- Service organizations manage fully integrated portfolios of investment and operational assets to optimize service delivery over time;
- Portfolio managers coordinate implementation of all materiel and non-materiel investment increments necessary to obtain an operational capability;
- Service analysis is the foundation for long-range planning by service organizations and the FAA as a whole;

- Users, customers, and industry work together to define affordable and sufficient requirements so practical solutions can be developed;
- Investment decisions are based on the relative merit of different investment opportunities for satisfying priority service needs and FAA performance goals;
- Commercial and non-developmental solutions are preferred when they satisfy customer needs and make economic sense;
- Investment programs are approved and funded in manageable phases;
- Lifecycle supportability is designed into products and services to minimize both cost and risk;
- Investment programs are managed within approved cost, schedule, performance, and benefit baselines throughout their lifecycle;
- In-service decisions are based on demonstration that operational requirements and readiness are satisfied;
- Evolutionary improvement of service delivery and the quick insertion of productive new technology is encouraged; and
- Operational performance, costs, and benefits are evaluated periodically throughout in-service management as a basis for improving cost-effective service delivery.

2.1.2 Evolutionary Product Development **Revised 4/2013**

The FAA employs evolutionary product development to limit the design challenge for any one product development cycle by deferring risky technology and immature requirements to later updates. The objective is to minimize risk and facilitate the achievement of cost, schedule, and performance goals. Product development and implementation are appropriate when risk is low, requirements are known and stable, and resources are available.

Evolutionary product development begins during research for service analysis when the FAA develops and evaluates new concepts and technology for possible application to the aviation service environment. Only the best new concepts validated to be technically, operationally, strategically, and financially mature and beneficial enter into the NAS Concept of Operations as candidates for investment and deployment.

During concept and requirements definition, service teams conduct a final assessment of the maturity of marketplace technology and customer requirements. Only low-risk, high-value investment increments proceed to investment analysis and solution implementation. Higher risk concepts are deferred, terminated, or designated for additional research or technology development.

2.1.3 Knowledge-Based Decision-Making **Revised 4/2013**

The FAA employs knowledge-based decision-making throughout the lifecycle management process. Specific knowledge, as defined by decision criteria, must be achieved for entry into AMS decision points. These criteria are defined as entrance criteria in the AMS policy section for each decision point. Investment programs that develop systems or software must capture additional design and manufacturing knowledge about their products as prescribed in Section 2.6.1, and base decisions on whether to proceed further in the lifecycle management process on

that knowledge.

2.1.4 Investment Planning Revised 4/2019

Investment planning occurs throughout the AMS lifecycle management process (see Table 2.1.4-1). During service analysis and strategic planning, the focus is on defining corporate service needs and shortfalls and deciding when to seek solutions within realistic budgetary constraints. Investment planning during the remainder of the AMS lifecycle management process supports the definition, acquisition, deployment, and lifecycle support of affordable solutions to approved service needs. Throughout this management process, FAA service organizations employ standard scheduling practices, standard program milestones, and the standard lifecycle work breakdown structure.

Table 2.1.4-1 Investment Planning During the AMS Lifecycle Management Process

Lifecycle Management Phase	Focus of Investment Planning
Service analysis and strategic planning	FAA service needs and service shortfalls
Concept and requirements definition	Program requirements and alternative solutions for approved service needs
Initial investment analysis	Business case analysis to determine the best overall solution
Final investment analysis	Final business case and implementation planning for the alternative selected for acquisition and deployment based on vendor proposals and operational support needs
Solution implementation	Program implementation consistent with the acquisition program baseline or execution plan approved at the final investment decision
In-service management	Sustainment of operational assets including product improvements and technology upgrades as defined in the business case

2.1.4.1 FAA Scheduling Practices Revised 10/2014

Service organizations and program offices employ FAA scheduling best practices when planning investment programs. This includes communicating up-to-date acquisition and site-specific waterfall deployment schedules to all key stakeholders by means of the corporate work plan. Guidance for

FAA scheduling practices is located in FAST on the investment analysis page.

2.1.4.2 Standard Program Milestones Revised 4/2019

Service organizations and program offices employ standard program milestones when planning, executing, and reporting progress on agency investment programs, including entries in the OMB Major IT Business Case (designated programs only) and acquisition program baseline or execution plan. Standard milestones for system and facility investment programs are located in FAST on the decisions / reviews / standard milestones page.

2.1.4.3 Standard Lifecycle Work Breakdown Structure Revised 10/2014

Service organizations and program offices employ the FAA standard lifecycle work breakdown structure when estimating total lifecycle cost and constructing initial program plans and schedules for each alternative solution during initial investment analysis. They use it during final investment analysis to develop a program work breakdown structure and implementation planning for the alternative approved by the Joint Resources Council.

2.1.5 Measurement and Analysis Revised 4/2019

Measurement and analysis is a management and control process applied throughout the lifecycle of an investment program or operational asset to assess progress, forecast performance, determine status, and define corrective action. Measurement and analysis provides information and visibility toward accomplishing program goals and supporting management information needs.

Each line of business or staff office institutes measurement and analysis processes in accordance with AMS policy and guidance that:

- Collect, store, analyze, and report data on seventeen standard measures defined in Standard Program Performance Measures;
- Collect, store, analyze, and report baseline performance data defined in the Acquisition Baseline Management Standard Operating Procedure for those programs with an approved acquisition program baseline or execution plan; and
- Provide early warning indicators of program issues before they become major problems.

Measurement and analysis information needs include, but are not limited to:

- Contract information that supports management and executive monitoring of vendor performance;
- Contract information that supports acquisition quality assurance;
- Program, operational, risk, and contract information that supports monitoring of lifecycle cost, schedule, performance baselines, as well as benefits and technical progress;
- Program information that supports achievement of FAA strategic goals and alignment with the enterprise architecture; and
- Operational and business case information that supports investment decision-making.

2.1.6 Verification and Validation Revised 10/2014

The FAA employs verification and validation throughout the acquisition management lifecycle in accordance with AMS verification and validation guidelines to support investment decisions and approvals. Validation ensures the right product is built (fulfills its intended use). Verification ensures a product is built right (according to specifications). Verification and validation are performed early and incrementally throughout the lifecycle management process on select work products, product components, and products. Products are intended for delivery to a customer or end user. Product components are lower-level configuration items of the product. Work products represent, define, or direct product development. The following are sample work products, work components, and products subject to verification and validation:

- Operational concept or procedures
- Planning documents
- Requirement and specification documents
- Procurement and contractual documents
- Models, prototypes, and simulations
- Design documents
- Products and product components